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("Ueber die Kolbenzellen in der Epidermis der Fische." *Jen. Zeitschr. f. Naturwiss.*, vol. 40, pp. 589–646, pls. 22–26) goblet cells occur in the epidermis of cyclostomes and most physostomous teleosts. All goblet cells are modified epithelial cells from the deepest or germinal layer of the epidermis. They are undoubtedly specialized unicellular glands which may have in addition some supporting function.

The Selachian Eye. From a study of the eyes of some eighteen species of sharks and rays Franz ("Zur Anatomie, Histologie, und functionellen Gestaltung des Selachierauges.' *Jen. Zeitschr. f. Naturwiss.*, vol. 40, pp. 697–840, pl. 29), has shown that while there are many specific differences, the eyes of this group as a whole are clearly distinguishable from those of other vertebrates. What is especially peculiar in them is the tapetum lucidum, an epithelial musculature in the iris instead of the usual mesodermal one, a specialized zonula zinnii, and the absence of a falciform process characteristic of other fishes. The adaptations shown by the eyes of different species are discussed at some length.

G. H. P.

BOTANY

Bergen and Davis's Principles of Botany.[1] — One of the most successful American elementary botanical text-books has been Bergen's *Foundations of Botany*. With its author, Dr. Davis has been associated in the preparation of the present book, which is certain to find favor with the users of its predecessor and to win many new friends since in addition to what was best in the earlier text there is now given a consecutive series of studies of representative spore plants so treated as to outline the evolutionary history of the plant world. Both authors are experienced teachers, and also familiar with research problems at first hand, and they have brought to their task unusual care in grouping and handling the subject matter and in well illustrating it.

The book is said to furnish material for a full year's work. It contains, indeed, enough to occupy considerably more than this time, if all of its topics were thoroughly worked over; but the purpose of its authors has been to present somewhat more than is likely to be used, so that individual teachers may find it comprehensive enough to base on it courses adapted to their several needs. It is safe to say that it will be a much consulted book even in laboratories where other manuals are used to outline the courses given.

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[1] Bergen, J. Y., and Davis, B. M. *Principles of Botany.* Boston, Ginn & Co., 1906. 12mo, ix + 555 pp., 14 pl., 402 figs.

W. T.

Rydberg's Flora of Colorado.[1] As a precursor to his flora of the entire Rocky Mountain region, Dr. Rydberg has prepared a manual of the Pteridophytes and Spermatophytes of Colorado, which, for extent and carefulness of work stands well to the front among our State floras. Forty-nine orders, 134 families, 702 genera, and 2912 species find representation in it. The nomenclature used is essentially after the Philadelphia Code. Generic limits are confessedly rather radically close, and the same may be said of the limitation of species. Apparently good keys are given for the higher groups, genera, and species; but descriptions are limited to these, though ample data are given as to habitat, distribution, etc., and considerable synonymy is added.

W. T.

Notes:—The recently issued fifth volume on the Congress of Arts and Science, held in connection with the Louisiana Purchase Exposition of 1904, (Boston and New York, Houghton, Mifflin & Co., 1906) deals with Biology, Anthropology, Psychology and Sociology, and contains the following addresses of botanical interest:— Coulter, "Development of Morphological Conceptions"; Loeb, "The Recent Development of Biology"; De Vries, "A Comparison between Artificial and Natural Selection"; Bower, "Plant Morphology"; Goebel, "The Fundamental Problems of Present Day Plant Morphology"; Wiesner, "The Development of Plant Physiology under the Influence of the Other Sciences"; Duggar, "Plant Physiology—Present Problems"; Arthur, "The History and Scope of Plant Pathology"; Waite, "Vegetable Pathology an Economic Science"; Drude, "The Position of Ecology in Modern Science"; Robinson, "The Problems of Ecology"; Jordan, "Relations of Bacteriology to Other Sciences"; Smith, "Some Problems in the Life History of Pathogenic Micro-Organisms."

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[1] Rydberg, P. A. "Flora of Colorado." *Bulletin 100, Agricultural Experiment Station of the Colorado Agricultural College*, Fort Collins, Col., 1906. 8vo, xxii + 447 pp.